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ABSTRACT

College admissions tests provide a standardized and objective measure of student achievement and generalized skills. Unlike high school grades or rank, admission tests are a common measure for comparing students who have attended different high schools, completed different courses, received different grades in courses taught by different teachers, and had access to different opportunities and experiences both in and out of school. This chapter provides a general overview of the three undergraduate admissions tests--the ACT Assessment, SAT I, and SAT II. Various influences on admissions tests scores and testing accommodations for student with disabilities are also discussed. (Contains 25 references and 1 table.) (GCP)

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Issues in College Admissions Testing

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Chapter 20
Issues in College Admissions Testing

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College admissions tests provide a standardized and objective measure of student achievement and generalized skills. Unlike high school grades or rank, admissions tests are a common measure for comparing students who have attended different high schools, completed different courses, received different grades in courses taught by different teachers, and had access to different opportunities and experiences both in and out of school. For the past 20 years, however, high school grades and rank have consistently been the most important factors used for making college admissions decisions, according to admissions officers. In comparison, both private and public institutions consistently rank admissions test scores as the second most important factor in admissions decisions (Breland, Maxey, Gernand, Cumming, & Trapani, 2002).

In 1999, 82 percent of all four-year colleges and institutions required an admissions test, and more than 91 percent of non-open institutions required one (College Board, 2001). These numbers have remained consistent over the past decade, irrespective of claims that more institutions are moving away from admissions tests. More than half of two-year institutions also require, recommend, or accept admissions test scores.

Factors in College Admissions Decisions

Many different factors are considered in college admissions decisions. Table 1 contains a comprehensive list of the different factors used in college admissions; many fall outside the arena of admissions testing. High school grades, high school coursework, and high school rank are probably the best known college admissions measures. Letters of recommendation, personal statements by the applicant, extracurricular activities, and community involvement are often considered as well. Developers of admissions tests encourage

postsecondary institutions to consider multiple measures in the admissions process. No measure captures all relevant student characteristics. Students and counselors need to identify the specific admissions criteria of individual institutions by requesting the information by mail or visiting the institution's website.

Table 1. Factors in College Admissions Decisions

Cognitive Measures			Noncognitive Measures	Achievements/Experiences	Personal Characteristics	Other
Tests *Aptitude* • SAT I *Achievement* • ACT • SAT-II • GED • TOEFL • State-mandated HS achievement • Basic skills • Locally developed *Other* • Career planning/ placement	HS Grades • Rank • Overall GPA • GPA in specific courses • Grade trajectory	HS Courses • AP/IB • Honors • Carnegie units (UC) • College preparatory • Rigor and distribution	• Positive self-concept • Realistic self-appraisal • Understanding of and willingness to deal with racism • Focus on long-range goals over short-term or immediate goals • Successful leadership experience • Demonstrated community service • Knowledge acquired in a field • Personality measures *Qualities Present on Application* • Motivation/initiative • Follow-through • Moral and ethical character • Compassion, empathy, and social consciousness • Communication skills • Understanding of interdisciplinary study • Intellectual curiosity • Interest in others	• Letters of recommendation • Resume • Communication with counselors and teachers/ counselor evaluation • Portfolios/auditions • Essay/personal statement • Interview • Academic honors • Special projects or research • Extracurricular activities • Leadership activities • Community service • Art, athletic, music, theater, or science accomplishments • Graded high school papers/ writing sample • Employment • Literacy in another language	*Student Body Considerations* • Racial/minority status • Economic disadvantage • State/country of residence • Health statement/physical exam • Ability to pay need for financial aid • Religion • Gender • Disability • Age • Full-/part-time status • Declaration of major/ professional diversity • Veteran/military service • Disciplinary record • College transfer credit • Development (fund-raising) prospects *Individual Strengths* • Ability to benefit • Ability to overcome life challenges	*High School Characteristics* • Quality of high school (e.g., number of AP/IB courses, percentage of students attending college, average SAT/ACT scores) • Location of high school *Contextual Factors* • Institutional priorities • Competitiveness of applicant pool/number and quality of applicants) • Early decision cycle *Other* • Legacy/alumni recommendation • Provost's discretion • Nomination by U.S. congressperson (for military academies) • Random selection (lottery for those meeting minimum eligibility requirements)

*From W. Sedlacek, University of Maryland College Park.

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Characteristics of the ACT Assessment, SAT I, and SAT II

This section provides a general overview of the three undergraduate admissions tests. This information was taken from the websites for these testing programs. For further details, visit their websites at www.act.org/aap and www.collegeboard.com.

The ACT Assessment, SAT I, and SAT II provide information about students' relative strengths and weaknesses, and provide normative information regarding test performance by college-bound students nationally. The interpretation of the scores is not dependent on the schools students attend or the teachers who teach the students. These tests are intended to be one of multiple measures used to identify students' preparedness for college-level work, to augment high school grades and rank information, to award scholarships, or to place students into college courses. They also collect comprehensive information about students' background, educational experiences, and educational plans after high school.

Multiple forms of the SAT I and II and the ACT Assessment are administered each year to college-bound students. To ensure that scores across test forms are equivalent, the forms are *equated.* This process converts raw scores (number correct for the ACT Assessment and raw scores adjusted for guessing for the SAT I and SAT II) on each test form to scale scores, while adjusting for minor differences in difficulty among forms. As a result, for example, a composite score of 20 on the ACT Assessment means the same level of achievement for all students with that score, regardless of the test form students complete. Equating permits test users to compare students' test scores even when students complete different forms of the test within the same year or in different years.

The ACT Assessment

The ACT Assessment includes a battery of achievement tests designed to assess students' critical reasoning and higher-order thinking skills in four core subject areas: English, mathematics, reading, and science. The content of the ACT Assessment is based on the skills and knowledge that are taught in high school college-preparatory programs nationwide and that are necessary for success in the first year of college (ACT, 2000b). The content of the ACT Assessment is determined through national curriculum surveys, panels of prominent national specialists in subject matter and curriculum, and reviews of current state standards, curriculum frameworks, and commonly used textbooks.

ACT follows a multistage developmental and review process designed to ensure sensitivity and fairness of ACT test materials for all examinees, regardless of group (ACT, 2000a).

The ACT Assessment yields four subject area scores, a composite score, and seven subscores:

English (two subscores; 75 items; 45 minutes)
- Usage/Mechanics
- Rhetorical Skills

Mathematics (three subscores; 60 items; 60 minutes)
- Pre-algebra and Elementary Algebra
- Intermediate Algebra and Coordinate Geometry
- Plane Geometry and Trigonometry

Reading (two subscores; 40 items; 35 minutes)
- Arts and Literature
- Social Studies and Natural Sciences

Science Reasoning (40 items; 35 minutes)

The composite score is the arithmetic average of the four subject area scores, rounded to the nearest whole number. Scale scores range from 1 (low) to 36 (high) for each of the four tests and for the composite. The subscale scores range from 1 (low) to 18 (high). Beginning in fall 2004, the ACT Assessment will include an optional writing component. Postsecondary institutions will each decide whether to recommend that prospective students take the ACT Assessment or the ACT Assessment Plus Writing.

SAT I: Reasoning Tests

The SAT I: Reasoning Tests were designed to measure students' academic ability in the areas of verbal and numerical reasoning, both of which are needed to do college-level work. Test developers write the questions for the SAT, sometimes incorporating questions submitted by high school and college teachers from around the country. A test committee made up of high school and college faculty and administrators reviews each test before it is administered.

The test is divided into seven separately timed sections:

Verbal (three sections; 78 items; 75 minutes)
- Analogies
- Sentence Completion
- Critical Reading

Mathematics (three sections; 60 items; 75 minutes):
- Arithmetic
- Algebra
- Geometry

Variable (one section; 30 minutes. This section does not count toward students' scores; it is used to test new questions and make sure scores are comparable.)

The SAT I tests are reported on a scale of 200 (low) to 800 (high). A student's Verbal and Mathematics scale scores are computed by first establishing a raw score, corrected for guessing. Raw scores are converted to scores on the 200-to-800 scale. These are the scores that appear on students' score reports. Students who do not answer any questions on a test automatically receive a score of 200.

The SAT I will be substantially revised in 2005. The Verbal section will be renamed Critical Reading and will be shortened to 70 minutes; the Analogies subsection will be replaced with additional passage-based reading items. The Mathematics section will include additional items from advanced math courses such as Algebra II and will also be shortened to 70 minutes. (Math and Critical Reading sections will each have two 25-minute sections and one 20-minute section.) Essay and multiple-choice subsections will comprise a new Writing section, which will be approximately 50 minutes in length and result in a third score on the 200-to-800 scale. The Variable section will be retained but possibly shortened to result in a total testing time of about 3.5 hours.

SAT II: Subject Tests

The SAT II: Subject Tests are intended to measure students' knowledge and skills in particular subjects and their ability to apply that knowledge. Originally called Achievement Tests, the initial tests were primarily developed to aid in course placement. Over the years highly selective institutions have also used them as a supplement to the SAT I and ACT Assessment for making admissions decisions. Students use them to demonstrate their special preparation for various college programs of study.

There are 22 subject tests in Mathematics, Science (e.g., Chemistry, Biology), Social Sciences, Literature, and Foreign Languages. The content of most tests reflects general trends in high school curriculum. In some instances foreign language tests such as Hebrew, Chinese, or Korean have been developed, even though few high schools offer courses in these languages. In these instances, the SAT II tests are designed to reflect the curriculum of special academic

courses that are offered in specialized schools or programs.

All SAT II tests are one-hour, multiple-choice tests, except the Writing test, which has 40 minutes of multiple-choice questions and a 20-minute writing sample section. SAT II scores are corrected for guessing and are reported on the same score scale as the SAT I (200–800). Subscores are provided for listening, usage, and reading sections of some language tests. These subscores are reported on a 20-to-80 scale. The 20-minute writing sample for the SAT II: Writing Test is scored on a 1-to-6 scale; the multiple-choice subscore is reported on the 20-to-80 scale.

ACT Assessment/SAT I Concordance

Most postsecondary institutions accept either ACT or SAT I scores for college admission. Both sets of scores are also used for college scholarships, including determining scholarship eligibility for student athletes planning to enter college. To provide equitable decisions regardless of whether students take the ACT or the SAT I, a *concordance* is needed to identify comparable scores on the two tests. ACT, Inc., the Educational Testing Service (ETS), and the College Board, in collaboration with the Associated Chief Admissions Officers of Public Universities, developed the most recent concordance tables between the ACT and the SAT I tests (Dorans, Lyu, Pommerich, & Houston, 1997). The overall correlation between the sum of the SAT I Verbal and Mathematics tests and the ACT composite score is .92. The concordance tables are based on the ACT Assessment and SAT I scores of students who took both tests between October 1994 and December 1996. These tables include concordances between SAT I Verbal and Mathematics and ACT composite, as well as between SAT I Verbal and Mathematics and ACT Sum (the sum of the scale scores on the four ACT subject area tests). Copies of the concordance tables may be obtained by contacting ACT, Inc., or the College Board. The SAT I Verbal and Mathematics and ACT composite concordance table may also be downloaded from the College Board website: www.collegeboard.com/sat/cbsenior/html/stat00f.html.

Influences on Admissions Test Scores

SAT I, SAT II, and ACT Assessment scores provide straightforward, easily interpreted information about students' readiness to undertake college coursework. In conjunction with other

achievement-related and noncognitive information, they are intended to predict students' likely success in college. The SAT II and ACT Assessment tests, being achievement-based tests, are also intended to measure the skills and knowledge students have learned in high school that are necessary for success in college. They are often used to aid in college placement decisions and to predict students' likely success in specific college courses.

Scores and High School Coursework

Students' performance on the ACT Assessment and SAT II depends to a large extent on the courses they take and how well they master their high school coursework (as measured by the grades they earn in these courses). ACT research has shown that students who take college preparatory core courses in high school (four years of English and three years each of mathematics, social studies, and natural sciences) score, on average, about 2.5 scale score units higher than those who do not take core coursework (ACT, 2001). Moreover, students who take upper level mathematics or science courses in high school typically earn higher ACT scores than do students who do not take these courses, regardless of the high school they attend; how they spend their time; their perceptions of self, home, and school; or their family backgrounds (Noble, Davenport, Schiel, & Pommerich, 1999b).

Morgan (1989) found that, on average, students who take more mathematics, natural science, and foreign language courses earn higher SAT I scores. Upper level mathematics, natural science, and foreign language coursework had the strongest relationships with SAT I scores. SAT II results paralleled those for the SAT I: The level of coursework in mathematics, chemistry, biology, French, and Spanish was more closely related to their corresponding subject area test scores than was English coursework.

Differential Performance by Population Subgroups

Average differences in achievement are well documented among racial, ethnic, and gender groups on all kinds of measures of academic achievement and aptitude (e.g., ACT Assessment scores, NAEP scores, SAT scores, Stanford Achievement Test scores, performance assessments). On average, African American, Native American, Mexican American, and Hispanic students attain lower ACT and SAT scores than do Caucasian American students, with differences ranging from about .4 standard deviation units to .9 standard deviation units. Such differences on admissions tests reflect similar differences in other

predictors (e.g., high school grades and rank, completion of honors courses) and college performance (freshman GPA, cumulative GPA, college graduation; Camara & Schmidt, 1999). ACT Assessment score differences between gender groups are very small: average ACT composite scores of males and females differ by only 0.04 standard deviation units (ACT, 2001). Gender differences on the SAT I Verbal and Mathematics tests are somewhat larger, with differences of .06 standard deviation units for SAT I Verbal, favoring females, and .31 standard deviation units for SAT I Mathematics, favoring males (College Board, 2001).

Students' high school coursework and grades, education-related factors (e.g., needing help with reading or mathematics, enrollment in a college preparatory curriculum), activities and behaviors, perceptions of self and others, family background, high school attended, and race, ethnicity, and gender explain only 1 to 2 percent of the variance in ACT performance (Noble, Davenport, Schiel, & Pommerich, 1999a). Similar results were found for the SAT I (Everson & Millsap, 2001).

Predicting Freshman GPA

ACT and SAT scores and high school grades and rank used jointly for making college admissions decisions yield more accurate decisions than any used alone. Bridgeman, McCamley-Jenkins, and Ervin (2000) showed an adjusted correlation of .52 between SAT I and freshman grade point average (FGPA), and an increase in the adjusted multiple correlation of .09 from SAT I over using high school GPA alone. In a study of admissions decisions at eight traditional to highly selective institutions, ACT scores alone or high school GPA alone accurately predicted academic success for about three-fourths of the students. (Academic success was defined as completing the first year of college with a C or higher average grade.) By using ACT scores and high school GPA jointly, institutions could accurately predict academic success for about 80 percent of the students (ACT, 1997).

Results from a recent study (Noble & Sawyer, 2002) indicate that ACT composite scores provide differentiation across a broader range of achievement in college than do high school grades. High school GPA was found to be slightly more accurate than the ACT composite score for predicting moderate levels of academic performance in college (e.g., 2.50 or 3.00), but the ACT composite score was more accurate than high school GPA for predicting superior levels of academic performance (e.g., 3.50 or 3.75). Similarly, SAT I correlations are higher when predicting performance in more selective colleges and among

higher performing students (Ramist, Lewis, & McCamley-Jenkins, 1993).

Research has demonstrated that admissions tests are useful also in predicting college success. In fact, a meta-analysis of thousands of validation studies has shown that the adjusted correlation between SAT I and FGPA is nearly as high as that between high school GPA and FGPA (Hezlett et al., 2001). Studies have also demonstrated that admissions tests and high school GPA are the best available predictors of college persistence and graduation, although the correlations are lower than those with GPA because many factors unrelated to academic achievement affect these outcomes. Among African American, Hispanic, and Caucasian American students with the same ACT composite score, SAT I score, or high school GPA, African American and Hispanic students achieve lower FGPAs than do Caucasian American students (Noble, in press; Bridgeman et al., 2000). In other words, ACT scores, SAT scores, and high school GPAs overpredict FGPAs of African American and Hispanic students. Moreover, high school GPAs are more likely than ACT scores to overpredict FGPA. The degree of overprediction varies, however, depending on gender. Bridgeman et al. (2000) found that FGPAs of women were slightly underpredicted by SAT I Verbal and Mathematics scores. Sawyer (1985) found a similar result for ACT composite scores. For African American and Hispanic males, SAT scores overpredict FGPA, and for females from these groups, high school grades overpredict FGPA.

ACT composite score, SAT I Verbal and Mathematics score, and high school GPA are somewhat more accurate in predicting FGPAs for African American students than for Caucasian American students (Noble, in press; Bridgeman et al., 2000). In contrast, all three are slightly less accurate for Hispanics than for Caucasian Americans. SAT I scores are more accurate in predicting females' performance in college (Bridgeman et al., 2000; Noble, Crouse, & Schulz, 1996; Sawyer, 1985).

Testing Accommodations for Students with Disabilities

By law, testing companies must provide reasonable accommodations for students with qualifying disabilities, unless the accommodation will alter the intended purposes of the test or result in an undue burden. Moreover, the accommodation must be a reasonable one, but might not always be the preferred accommodation. Individual disabilities are not reported with the scores (Noble, Camara, & Fremer, 2002). Effective in fall 2003, ACT Assessment and SAT I and II score

reports of those students testing under extended time conditions will no longer be flagged as testing under nonstandard conditions.

Admissions testing programs provide procedures for counselors and individuals with disabilities to follow in order to obtain accommodations. Counselors and students should refer to the ACT (www.act.org/aap/disab) and ETS (www.ets.org/disability/index.html) websites for detailed information about requesting testing accommodations.

Test Preparation

Nearly a dozen studies have been completed examining the effects of coaching on admissions tests. Results from these studies have been remarkably consistent and demonstrate that commercial coaching courses, on average, produce total gains of 21 to 34 points on a 400–1600 combined Verbal and Mathematics scale for the SAT I. Gains are typically larger for Mathematics than for Verbal sections, and coaching does not appear to benefit any particular group more than other students. Briggs (2001) examined the effects of a range of test preparation activities and found extremely small effects attributable to test preparation. He reports gains of 8 and 14 points on the SAT I Verbal and Mathematics tests, respectively, as a result of formal coaching courses, and gains of 2 to 3 points for each test as a result of software and school courses. Formal coaching courses produced gains of no more than .4 and .6 points for the ACT Mathematics and English tests, and actually resulted in lower scores on the ACT Reading test.

Retesting

About 50 percent of students who take the SAT I take the test more than once. About 11 percent of these students test more than twice. Much of the score gain often viewed as resulting from test preparation actually reflects a student's academic development, maturation, and ease and familiarity with taking a high-stakes test like the ACT Assessment or SAT I. For example, most juniors who retake the SAT I as seniors increase their scores; the average gain is 12 to 13 points on Verbal and Mathematics scales. Juniors who score high on their initial test are less likely to increase their scores as much as lower scoring students do when they retake the test.

About 36 percent of students who took the ACT Assessment in 2000–2001 took the test more than once. The average gain from first to

second testing was about one composite score point. However, average score gains decreased over multiple testings (ACT, 1997).

Current Concerns and Future Directions

There has always been some controversy associated with admissions tests. Group differences in performance on admissions tests are often seen as evidence of bias. Differential access to test preparation or rigorous high school courses is viewed as giving some students unfair advantages. These concerns, however, extend to all factors used to make educational decisions, such as the rigor of courses completed, high school GPA, college grades, and extracurricular activities.

There has been increased concern that college entrance requirements are not adequately aligned with high school curriculum standards and state assessments. Some proponents of standards-based reforms have advocated using the same assessments used for K–12 accountability purposes as admissions tests for higher education. These proposals have generally not considered many of the psychometric and operational difficulties associated with such dual use of these assessments. The ACT Assessment is aligned with most high school content standards, as well as with the skills and knowledge required for success in college coursework. The SAT II is related to most high school content standards, and the SAT I is aligned to core skills required for success in college. Although some policymakers continue to advocate increased use of state assessments for college admissions (e.g., Gose & Selingo, 2001; Hebel, 2001), little research has been conducted to examine the efficacy of using such tests for multiple purposes. Several state university systems have implemented policies that guarantee admission to students who attain some rank (e.g., top 4 percent, 10 percent, 20 percent) in their high school class, irrespective of differences in academic achievement across high schools. There also appears to be increased interest in examining additional factors such as motivation, leadership, and ability to benefit that may be useful in predicting college completion and success (e.g., Gose & Selingo, 2001; Selingo, 2001)

Finally, ACT, Inc., and the College Board have continued to conduct research on computer-based testing (CBT). Graduate admissions tests and many licensing tests have already made the transition to CBT platforms for test administration and scoring. The difficulties associated with making this transition with ACT and SAT tests are much greater, given that about 4.5 million admissions tests are administered each year and that students prefer to take these tests in

high school where differential access and capabilities to monitor testing exist. Yet it is likely that at some time in the future, both the ACT and SAT may change to new delivery platforms if schools continue to increase their technological capabilities.

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